OF CLASSES AND SUBCLASSES OF HUMAN SERUM IMMUNOGLOBULINS TABLE 4-2 PROPERTIES AND BIOLOGICAL ACTIVITIES*

t [†] 150,000 150,000 150,000 150,000 600,000 γ1 γ2 γ3 γ4 α1 9 3 1 0.5 3.0 23 23 8 23 6 + + +/- ++	Property/Activity	IgG1	IgG2	IgG3	IgG4	IgA1	IgA2	IgM*	IgE	IgD
$\gamma 1$ $\gamma 2$ $\gamma 3$ $\gamma 4$ $\alpha 1$ 9 3 1 0.5 3.0 23 23 8 23 6 + + +/- + + + + + + +	Molecular weight [†]	150,000	150,000	150,000	150,000	150,000-	150,000-	900,000	190,000	150,000
9 3 1 0.5 3.0 23 23 8 23 6 + +/- ++ - - + +/- + + - - - - - - + +/- ++ + - - - - - - - - - - - - - - - + - - - - + - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -	Heavy-chain	γ_1	γ2	γ3	γ4	$\alpha 1$	α2	ュ	w	ω
23 8 23 6 + +/- ++ - - + +/- + + - - - - - - + +/- ++ + - - - - - - - - - - + - - - - + - - - - + - - - - + - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -	Normal serum	6	В	1	0.5	3.0	0.5	1.5	0.0003	0.03
1 + + <td>In vivo serum</td> <td>23</td> <td>23</td> <td>∞</td> <td>23</td> <td>9</td> <td>9</td> <td>5</td> <td>2.5</td> <td>က</td>	In vivo serum	23	23	∞	23	9	9	5	2.5	က
++++++++++++++++++++++++++++++++++++++	Activates classical complement	+	-/+	+ +	į	ı	I	+ + +	I	l
	pathway Crosses placenta	+	-/+	+	+	I	i	ı	I	i
+++++++++++++++++++++++++++++++++++++++	Present on membrane of	I	ŧ	l	I	I	I	+	I	+
+	mature B cells Binds to Fc	+ +	- / +	+ +	+	I	I	۸.	t	I
1	phagocytes Mucosal transport	I	1	I	1	+ +	++	+	1	I
	Induces mast-cell degranulation	I	1	1	۱.	1	ŀ	ı	+	ı

^{*}Activity levels indicated as follows: + + = high; + = moderate; +/- = minimal; - = none; ? = questionable.

¹¹gG, 1gE, and 1gD always exist as monomers; 1gA can exist as a monomer, dimer, trimer, or tetramer. Membrane-bound IgM is a monomer, but secreted IgM in serum is a pentamer.

[#]IgM is the first isotype produced by the neonate and during a primary immune response.

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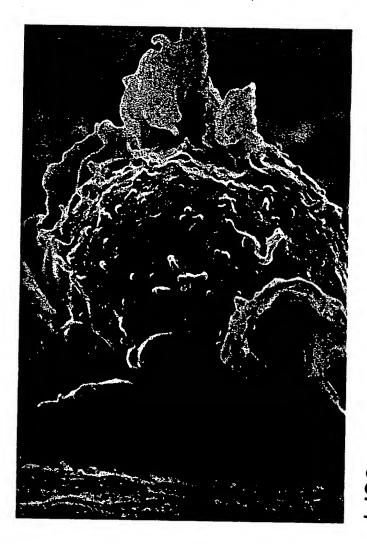
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